

Remarks

In view of the above amendments and the following remarks, reconsideration of the rejections and objections, and further examination are requested.

The specification has been amended so as to make a minor revision thereto. No new matter has been added by this revision.

Figures 1 and 2 have been objected to as not being labeled as "Prior Art." Replacement Figures 1 and 2 labeled as "Prior Art" are submitted herewith. No new matter has been added. As a result, withdrawal of the objection to Figures 1 and 2 is respectfully requested.

Figure 3 has been objected to as illustrating transformers having both an AC input and a DC input. The objection indicates that the transformer would block any DC signal. However, this assertion is incorrect.

As discussed at page 2, lines 5-14 of the original specification, a type of transformer exists that is compatible with both AC and DC signals. When the transformer receives a DC signal, it acts like a switching regulator and modulates the DC signal into a rectangular wave on the input side. Then, on the output side, the transformer demodulates (rectifies) the rectangular wave to recreate a DC signal that is then outputted. In this manner, the transformer is able to also pass DC signals. As a result, withdrawal of this objection to Figure 3 is respectfully requested.

Further, Figure 3 is objected to as failing to illustrate the connections to a load that is capable of operating with both AC and DC power. The objection indicates that "typically loads accept either AC or DC power and not both [and] therefore the details of the connection are essential to operation of the device [sic]." Regarding this objection, it is noted that devices do exist that are capable of operating on both AC and DC power. As indicated at page 2, lines 5-14, such devices include lights, refrigerators and air-conditioners that may or may not rely on an inverter to operate on both AC and DC power. Therefore, it is apparent that the connections associated with these devices are common, and it is unnecessary for the figures to explicitly illustrate them. As a result, withdrawal of this objection is respectfully requested.

Figure 6 has also been objected to for illustrating a transformer that passes a DC signal. However, based on the above discussion of such a transformer with regard to Figure 3, it is submitted that such a transformer is capable of passing a DC signal. As a result, withdrawal of the objection to Figure 6 is respectfully requested.

Claims 11-15, 17, 19 and 20 have been rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed for the following reasons.

Regarding claim 11, it is indicated that the specification fails to adequately disclose how both AC and DC power are supplied to the load and the load is capable of operating on both AC and DC power. However, as discussed in the original specification at page 7, lines 21-24, a switch is used to select between the AC and DC power being supplied to a load. Further, it is apparent that one of ordinary skill in the art would have been able to design a controller to control the switch to operate based on the conditions set forth in claim 11 in view of the discussion in the original specification at page 7, line 1 – page 8, line 1. Additionally, as discussed above, many devices do exist that are capable of operating on both AC and DC power.

Regarding claims 12 and 13, the rejection is based on the position that transformers cannot pass a DC signal and are unable to perform voltage conversion. However, as also discussed above, a type of transformer exists that is compatible with both AC and DC signals and is able to perform such conversions.

In light of the above discussion, withdrawal of the rejection under 35 U.S.C. §112, first paragraph, is respectfully requested.

Claims 11, 13, 14, 16, 18, 19 and 21 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. This rejection is respectfully traversed and/or submitted to be inapplicable for the following reasons.

Regarding claim 11, the rejection relates to the use of the phrase “a terminal period of discharging.” While it is believed clear what is meant by this phrase, claim 11 has been amended so as to change this phrase to “a minimum charge value” based on the suggestion set forth in the rejection.

Regarding claim 13, the rejection indicates that the term “unidirectional switches” is unclear. The rejection points to switches S5 and S6 as representing the switches, but ignores the diodes D5 and D6, which allow current flow in only one direction, schematically illustrated in Figure 11 as being associated with the switches S5 and S6. Further, the original specification at page 16, lines 6-9 indicates that the diodes D5 and D6 can be internal to the switches S5 and S6. Therefore, it is believed that the term “unidirectional switches” is clear.

The rejection of claim 13 also indicates that the phrase “boost type rectifying operation” is unclear. However, it is apparent that one of ordinary skill in the art would understand that boost type rectification relates to an output voltage being higher than an input voltage, i.e., the voltage is boosted.

The rejection of claim 13 further indicates that the description of the converter as a “DC-DC” converter is unclear. As a result, claim 13 has been amended so as to remove the label “DC-DC” regarding the converter.

Further, the rejection of claim 13 indicates that the statement “alternately reversing the high frequency modulation phase of the two unidirectional switches or the two pairs of the unidirectional switches” is unclear. However, it is apparent that this statement means that the phase of the switching of the switches is reversed and this reversal is alternated between the two switches or the two pairs of switches.

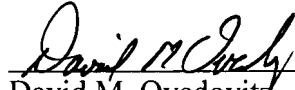
Additionally, the rejection of claim 13 indicates that the statement “when the battery has been almost fully charged at a light load and the AC power source has not failed for automatic phase synchronization” is unclear. As a result, claim 13 has been amended so as to address this portion of the rejection.

In light of the above discussion and the amendments to claims 11 and 13, withdrawal of the rejection under 35 U.S.C. §112, second paragraph, is respectfully requested.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

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